

Application No. 10/764,958
Docket No. 67815-000005
Resp. to OA of September 17, 2009, dated March 17, 2010

REMARKS/ARGUMENTS

Background and Current Status

This Amendment is made in response to the Office Action dated September 17, 2009. The Office Action has been carefully reviewed, and the above amendments and following remarks hereinafter are considered responsive thereto.

By way of background, claims 2, 3, 6-22, and 24-32 were examined and were pending in this application, prior to entry of this Amendment. Claims 24, 27, and 32 were the only three independent claims. With entry of this Amendment, Applicant has cancelled previously-pending claims 12, 21, 22, 24, 25, 26, 28, 29, and 32, which includes independent claims 24 and 32. Dependent claims 33-38 have been added by this Amendment. With the cancellation of independent claims 24 and 32, Applicant is hopeful that prosecution can now focus on the scope of independent claim 27, as now amended. Specifically, independent claim 27 has been amended to more clearly define the scope of one of the inventions disclosed in this application and to more clearly distinguish such claim from the references that have been cited and relied upon by the Examiner. Applicant believes that newly amended claim 27 is now in condition for allowance. Additionally, all of the now-pending claims 2-3, 6-11, 13-20, 30-31, and 33-38, which merely depend upon and further limit claim 27 should also now be in condition for allowance. Please note that some of these dependent claims have been amended to clarify their coverage and to conform their terminology with amended independent claim 27.

It is submitted that no new matter is presented by this Amendment, as all claim amendments and new claims are properly supported by the application as originally filed. This Amendment is believed to have corrected all deficiencies and grounds of rejection (other than claim renumbering for publication) so that a Notice of Allowance can be promptly issued.

Basis for Allowance of Amended Claims

Objection of Dependent Claims that Precede Independent Claim 27

In the Office Action, the Examiner has objected to the fact that dependent claims 2-3, 6-11, and 13-20 are dependent upon a subsequent rather than a previous independent claim,

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namely, claim 27, as required for an originally-filed application and for an issued patent. Applicant respectfully requests that Examiner hold this claim numbering objection in abeyance so that original claim numbering can be retained, pursuant to MPEP Section 719.04, until substantive examination of this application has been completed. In a previous Amendment, Claim 27 was added to replace original Claim 1. Dependent claims 2-3, 6-11, and 13-20, which originally depended directly or indirectly from original Claim 1 have just been amended to be dependent upon, directly or indirectly, independent claim 27. Applicant assumes that claim 27 would be renumbered as new claim 1 upon allowance, and that all of the allowed dependent claims would be renumbered as claims 2-25. For this reason, Applicant respectfully requests that the current claim numbers be retained, at least temporarily, for examination purposes and so that relevant amendments and changes to the claims can be more easily seen and followed. However, if this conventional approach is not acceptable, Applicant is willing to renumber pending independent claim 27 as new claim 39 and to renumber all of the current dependent claims as new claims 40-63, with all inserts and deletions removed. Applicant does not make this request to delay prosecution or to avoid responding fully to all outstanding issues.

35 U.S.C. § 103 Rejection

In the present Office Action, independent claim 27 (and the majority of claim 27's previously pending dependent claims) were rejected under 35 U.S.C. § 103(a) as allegedly being obvious over *Kapadia et al.* (U.S. Pat. No. 7,039,602) in further view of an article by Mike Thurber, entitled "Open Road to Strategic Value," Intelligent Enterprise, June 1, 1999 ("hereinafter "Thurber article"). Other references have been relied upon to reject the other independent claims (now cancelled) and specific elements of the dependent claims. These other references and grounds of rejection of the dependent claims should now be moot in light of the amendments made to independent claim 27 herein and since independent claim 27 should now be allowable over *Kapadia* in view of the Thurber article and over any other reference cited by the Examiner or known to Applicant.

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Applicant continues to believe that the Examiner's reliance upon *Kapadia* is misplaced, and Applicant believes that its amendments to claim 27 herein further highlight the differences and distinctions between claim 27 and the teachings of *Kapadia*. The Thurber article, on the other hand, is a much more relevant reference to the present application and to claim 27 because the Thurber article represents an early, but much less sophisticated, attempt to address one of the problems and difficulties in the industry, which are solved more fully by the teachings of the present application and by the invention as claimed in claim 27 and its dependents.

Amended claim 27 and its dependent claims are directed to a system by which a manufacturer (or seller) determines, in advance, what product configurations it will manufacture (or sell) to its customer base in a future, predetermined period of time. For products, such as computers, automobiles, or tractors, the number of features and options available for the manufacturer or seller to include in the product presents the manufacturer or seller with an astronomically high set of possible product configurations that could be manufactured and offered to its customer base. For this reason, some companies do not make any product until it has been custom ordered by one of its customers. Other companies make a "best guess" or intuitive determination as to what product configurations it will make in advance and hope or try to steer (as is done in *Kapadia*) its customers to buy one of these preconfigured product configurations. Determining what product configurations to make or sell, in advance, is a non-trivial process. But once that has been done, then the list of available product configurations can be presented to the buyer. This is EXACTLY the point in time in which the process and teachings of *Kapadia* begin - with a buyer interfacing with a user interface to start the process of selecting one of a finite list of already available product configurations - IN KAPADIA, SUCH CONFIGURATIONS HAVE ALREADY BEEN CHOSEN AND MANUFACTURED BY THE MANUFACTURER OR THE MANUFACTURER IS WILLING TO CUSTOM BUILD SUCH CONFIGURATION UPON REQUEST BY THE BUYER. This process of selling and receiving an order from a customer is irrelevant to the process a manufacturer or seller goes through, at a much early time, to decide, intelligently and based on available data, what product configurations it should make or sell in advance and then make available to the buyer for purchase. Thus,

Kapadia does not offer any help or provide any teaching that will enable a manufacturer or seller to determine what product configurations it should make or sell to its customer base over a future, predetermined period of time. *Kapadia* merely guides the buyer through the purchase process based on the product configuration decisions that have already been made by the manufacturer or seller.

Specifically, as has been stated previously, *Kapadia* teaches a conventional “configurator” system that enables a customer or purchaser to configure (i.e., select features and options of) a product on a per-feature basis while the product is being purchased. Essentially, *Kapadia* describes a product ordering engine that allows the purchaser to select product options, while at the same time receiving suggestions and recommendations from the manufacturer or seller, which may be trying to reduce specific inventory or sell product with a higher profit margin. Such recommendations or suggestions are made to the purchaser during a current and specific product order of the purchaser. [*Kapadia*, Col. 3, lines 34–58]. Thus, *Kapadia* does not address or help the manufacturer or seller decide, in advance, what product configurations it should make or sell to its entire customer base - *Kapadia* is focused on selling a single product to a single purchaser, well after most of the decisions have been made as to what product configurations will even be available to the manufacturer’s or seller’s customer base.

In contrast, newly amended claim 27 is directed to a computerized system for identifying, in advance, an optimum subset of product configurations from a plurality of possible product configurations associated with a product, wherein the optimum subset of product configurations identify the limited number (*r*) of product configurations that should be offered to a company’s customer base over a predefined future period of time to satisfy a desired objective of the company, wherein the product includes a plurality of available features and wherein each feature includes a plurality of available options, comprising: a processor; a database for storing product configuration data and historical demand data associated with the plurality of possible product configurations, wherein each product configuration includes a specific combination of choices of options associated with the respective product; and a computer readable medium that is usable by the processor and is operatively coupled to the database, the medium having stored thereon a

sequence of instructions that when executed by the processor causes the execution of the steps of:

receiving product configuration data from the database representative of the plurality of possible product configurations;

based on the received product configuration data, representing every product configuration in the plurality of possible product configurations mathematically as an n-dimensional vector array in a possible product configuration space, wherein each n-dimensional vector array identifies a unique combination of options associated with its respective product configuration;

applying mix-and-match rules to the n-dimensional vector arrays in the possible product configuration space to identify invalid product configurations and, correspondingly, define a plurality of valid n-dimensional vector arrays in a valid product configuration space representing all valid product configurations as a smaller subset of the plurality of possible product configurations;

receiving historical demand data from the database for the valid product configurations, the historical demand data including a demand value for each respective feature and option associated with each valid product configuration;

analyzing the valid product configuration space via an optimization model to generate an optimum but limited subset of (r) valid product configurations from the plurality of valid product configurations based on the desired objective of the company and the received demand values associated with each of the valid product configurations, wherein every valid n-dimensional vector array in the valid product configuration space is analyzed and evaluated according to the

desired objective of the company prior to identifying the optimum subset of (r) valid product configurations; and

outputting the generated optimum subset of valid product configurations that identifies the limited number (r) of product configurations that should be offered to the company's customer base over a predefined future period of time to satisfy the desired objective of the company.

Clearly, *Kapadia* is not directed to and does not teach or suggest a computerized system for identifying, in advance, an optimum subset of product configurations from a plurality of possible product configurations associated with a product, wherein the optimum subset of product configurations identify the limited number (*r*) of product configurations that should be offered to a company's customer base over a predefined future period of time to satisfy a desired objective of the company. Further, *Kapadia* does not represent every product configuration in the plurality of all possible product configurations mathematically as an *n*-dimensional vector array - that is irrelevant and unnecessary for a mere configurator system. Yet further, *Kapadia* does not (i) analyze the valid product configuration space via an optimization model to generate an optimum but limited subset of (*r*) valid product configurations from the plurality of valid product configurations based on the desired objective of the company and the received demand values associated with each of the valid product configurations, wherein every valid *n*-dimensional vector array in the valid product configuration space is analyzed and evaluated according to the desired objective of the company prior to identifying the optimum subset of (*r*) valid product configurations; or (ii) output the generated optimum subset of valid product configurations that identifies the limited number (*r*) of product configurations that should be offered to the company's customer base over a predefined future period of time to satisfy the desired objective of the company.

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Turning now to the Thurber article, as stated previously, Thurber identifies a process that was trying to help manufacturers or sellers of products, in which such products had a high number of options that could be combined in numerous arrangements, determine which product configurations to manufacture or sell. In Thurber's case study (p.3), the "business goal was to optimize option packages (patterns) to improve sales" of the one model of automobile that was used for the case study. In their case study, the particular automobile model had 35 different options available, which represented with numerous combinations and sub-combinations of options available. As Thurber pointed out, "[p]ast efforts to package options were marginally successful because of the complexity of the combinations" Thurber then acknowledges even further that "[a]lthough we wanted full dimensional analysis, it was impractical because we'd have to treat each option as a unique dimension....This dimensionality makes a data mart impossibly large, cumbersome, and slow." (p.3, emphasis added).

Thurber then describes the two alternative "short cuts" that were tried to achieve the desired end result, but without use of full dimensional analysis. Specifically, an "alternative was to have a single dimension with each option combination as a separate member - sort of a 'hash key' approach. But this dimension represented more than 10,000 values for about 40,000 vehicles, which didn't lend itself well to option package analysis."

Thurber then states that "[w]e proposed a compromise that would let us select a subset of the equipment options, believing that some options are more critical than others in defining an option package. Previous analyses had used this approach, selecting the "critical" options based subjectively on analysts' experience and intuition. But how do you objectively decide which options are critical? We needed an unbiased method...An autonomous data mining application ... read the vehicle equipment option records and resolved them into 14 distinct clusters or "patterns" (eminently more manageable than 10,000)."

The present application describes methods similar to Thurber's approach, explains why such approaches were decent approximations, but inadequate because they could not handle full dimensional analysis of all possible product configuration options. As set forth in amended claim 27, it is clear that the present invention describes how to and claims full dimensional

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analysis to optimize product configurations that should be manufactured or sold, based on objectives of the company. As stated in the application, such objectives include fixing the number of different configurations (r) that the manufacturer wanted to offer, optimizing profit associated with the set and number of product configurations, minimizing cost associated with the set and number of product configurations, or maximizing or increasing demand coverage with the set and number of product configurations.

Conclusion

Although not specifically addressed above, because amended independent claim 27 is now allowable over the cited references, it is respectfully submitted that all of its dependent claims, which merely add further limitations or details directly or indirectly to independent claim 27 from which they depend, are equally allowable for the same reasons described above.

It is believed that the foregoing amendments and arguments have addressed all of the claim rejections in the Office Action, and have thus placed all pending claims in condition for allowance. Such allowance is earnestly and respectfully solicited.

Based on the amendments presented herein and based on the remarks set forth above, it is respectfully submitted that none of the cited references, whether taken alone or in combination, teach, discuss, suggest, contemplate, or require all of the steps or elements of the amended independent claim 27 and its dependent claims. In light of the amendments and remarks presented above, reliance upon the references of record to support a 35 U.S.C. § 103 rejection of the claims is now unwarranted.

Applicant previously has paid for 27 total claims and 3 independent claims. After the present amendment, Applicant has presented 25 total claims and only 1 independent claim; therefore, no additional claim fees should be due with this filing. Further, this Amendment is filed in conjunction with a Request for a Three-Month Extension of Time to Respond, and the associated fees. If our assessment of additional claims fees or any other fees due is in error, please charge any fees that might be due or credit any overpayment to our Deposit Account No.

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191351. It is now believed that the application and all of the amended claims submitted herein are now in condition for allowance and such allowance is respectfully requested.

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Respectfully submitted

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